THE RESPONSIBILITY CENTER CONCEPT AND FINANCIAL PERFORMANCE MEASUREMENT AND EVALUATION

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CHAPTER I

INTRODUCTION

Statement of the Research Question

The issue to be investigated in this paper involves the responsibility center concept and the objectives of financial performance measurement and evaluation. It is speculated that the value of the responsibility center approach to performance evaluation is limited because of practical difficulties in application. For this reason, the responsibility center approach is frequently inappropriate or inadequate for evaluation of internal organizational performance. It is the objective of this study to answer the question: Does the responsibility center concept meet the objectives of financial performance measurement and evaluation?

Scope of the Study

Financial performance measurement and evaluation techniques appear to be based upon the perceived need for corrective and preventative controls to attain organizational objectives. In response to the issue concerning the value of performance evaluation, Anthony states:

> There seem to be two valid answers to this question. First, if a person knows in advance that his performance is going to be

judged, he tends to act differently from the way he will if he believes no one is going to check up on him. (Anyone who has received grades in school should appreciate the importance of this point.)

The second reason why the appraisal of performance is valuable is that even though it is literally impossible to change an event that has already happened, an analysis of how well a person has performed in the past may indicate, both to the person and his supervisor, ways of obtaining better performance in the future. Corrective action taken by the person himself is of prime importance; the system should "help the man help himself." Action by the superior is also necessary. Such action may range in severity from giving criticism or praise or suggesting specific means of improving future performance, to the extremes of either firing or promoting the person.[1]

Within the broad area identified in the above statement, budgeting and accounting are viewed as being facilitative of performance evaluation in financial terms. This paper is concerned with the objectives of the budgeting and accounting aspects of performance measurement and evaluation. For purposes of discussion, these are referred to as performance accounting objectives.

The responsibility center concept has developed within the field of managerial accounting as a technique for realizing the objectives of performance accounting. This concept and the associated principles, methods, and practices involved with it, constitute the central issue of this paper.

Purpose and Utility of the Study

Through the process of collecting together a number of viewpoints, this paper will identify the issues involved in the

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[1]Robert N. Anthony, Management Accounting Text and Cases (4th ed.; Homewood, Illinois: Richard D. Irwin, Inc., 1970), p. 522.

research question. It is expected that conflicts among authorities will be revealed and that areas where present knowledge is unsubstantiated or incomplete will be identified.

Research and Analysis Methods Used

Information used in the paper was obtained through search of literature pertaining to the research area. Various authorities in a number of related areas have been cited in cases where considered appropriate.

Facts and opinions bearing on the research question will be evaluated and interpreted to develop a conclusion that is responsive to the question. Deductive and inductive reasoning will be applied to the theories and cases cited.

Organization of the Study

The objective of this paper is to investigate the effectiveness of managerial accounting techniques, as manifested in the responsibility center concept, in meeting the objectives of financial performance and evaluation. Accounting measurements are financial in nature, yet performance evaluation is concerned with non-financial as well as financial factors.

In order to determine the contribution of the responsibility center concept, the first issue to be investigated will be that of the objectives of financial measurement and evaluation. This will involve a preliminary review of the concept of measurement, followed by an

investigation of the purposes of budgeting and accounting with respect to performance measurement and evaluation.

The second underlying question to be answered concerns the responsibility center concept. In this regard, the concept will be defined and associated principles and problems identified in the literature on this subject will be investigated. More specifically, a variety of proposed applications and limitations of the responsibility center concept will be reviewed.

Following these two preliminary considerations, the objectives of financial performance evaluation will be subjected to research to determine the specific issues involved. Where appropriate, the issues identified will be related to the responsibility center concepts and principles.

Conclusions concerning the value of the responsibility center concept as a technique for performance evaluation will be drawn from the results of the examinations described in the foregoing paragraphs.

CHAPTER II

OBJECTIVES OF FINANCIAL PERFORMANCE MEASUREMENT AND EVALUATION

Introduction

The search for efficiency, effectiveness and economy in organizations is pervasive. These qualities are typically the objective of performance measurement and evaluation. Efficiency is generally thought of as a ratio showing competency of performance with respect to input and output. Effectiveness implies a concentration on output and on the capability to produce a desired result. Economy, on the other hand, is characterized by frugality of inputs. Each of these terms, and all of them collectively, constitute the broad objective of performance measurement and evaluation. Because of the close relationship of these terms, and the difficulty in distinguishing the various shades of meaning involved, their collective nature will be considered as the generalized quality with which performance measurement and evaluation are concerned.

This generalized objective defies measurement and evaluation. For this reason, systematic procedures are required to simplify these qualities into elements that are subject to measurement. The concept and nature of measurement and the difficulties associated with

measurement require investigation before proceeding to the more specific objectives of budgeting and accounting in performance measurement and evaluation.

The Nature of Measurement

Measurement pertains to ascertainment of extent or of dimensions of that which is being measured. Comparison with a standard is associated with the concept of measurement. Baumol, in a general discussion of the term measurement, indicates that "a measure, in its most general sense, is simply a device which is designed to convey information about the phenomena to which it refers."[1] In expanding the concept, he indicates that the information is typically numerical and therefore a "linguistic convention"[2] is required to indicate the meaning of the measure.

The frequently-used example of measuring temperature is illustrative of the concept. The terms cold and hot are relative and imprecise. The context in which these terms are used is important to understanding. It should be recognized that the terms describe a quality. The term "70 degrees Fahrenheit" along with the context in which it is used, gives a more precise meaning to the measurement of temperature. In this case a quantity is used as a measurement of quantity. Baumol[3]

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[1]William J. Baumol, Economic Theory and Operations Analysis (2d ed.; Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1965), p. 513.

[2]Ibid.

[3]Ibid., pp. 513-514.

expands the concept of measurement by the use of three classifications that have varying power to convey information. The first and weakest index type is associative. This is illustrated by the example in which faces in a photograph are identified by a number shown for each person in the photograph and a corresponding separate listing of numbers and names. A second classification uses ranking or ordering on a scale. This measurement, typified by a hardness index, carries associative information; but it does more. A more rigidly specified linguistic convention is therefore required. The ordinal utility measure fits into this classification. Cardinal measures, the third category, convey more than either of the former. These measures permit prediction; they are additive. The predictive feature is illustrated by the example in which the number of boards four feet long that can be cut from a board twenty-four feet long can be predicted. It is noted that this measurement can also be applied to the ranking and to the ordering categories.

The foregoing are meant to be illustrative of conceptual difficulties associated with the term "measurement." As pointed out by Paul Kircher of the University of California at Los Angeles:

> Measurement has always been an important factor in providing information to serve as the basis for solving business problems. But as management has become more interested in using scientific tools to aid in making decisions, it has become increasingly evident that present methods of measurement in the business field frequently are inadequate.[1]

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[1]Paul Kircher, "Fundamentals of Measurement," in Management Systems, ed. by Peter Schoderbek (New York: John Wiley & Sons, Inc., 1967), p. 361.

Kircher indicates that while much of the indefinability of business logic will continue, "nevertheless there are many relationships which can be measured in business."[1] Much of the problem of measurement in business is associated with difficulties in defining objectives. The issue to be resolved concerns development of objectives that are "susceptible of some sort of quantification."[2]

A tentative rationale for measuring proposed by C. West Churchman is that "the function of measurement is to develop a method for generating a class of information that will be useful in a wide variety of problems and situations."[3] In this context, Churchman sees measurement as a decision process because of the alternative ways in which data can be assigned to categories and the ways that numbers are assigned.

Churchman[4] proposes that a measurement scheme should be considered with respect to language, specification, standardization, and accuracy and control. The objectives of the language of measurement include: communication to a number of potential users; facilitation of utilization of the information. The conflict in these language goals is recognized. A decision is required to balance commonality and

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[1]Ibid.

[2]Ibid.

[3]C. West Churchman, "Why Measure?" in Measurement Definitions and Theories, ed. by C. West Churchman and Philburn Ratoosh (New York: John Wiley & Sons, Inc., 1959), p. 84.

[4]Ibid., p. 85.

complexity; breadth and depth. Increased preciseness limits the number of users of information. The specification issue applies to the scope of application with respect to time, place, and items. The degree of generality is the conflict in this case. The decision is to determine what objects in what environment apply. To be useful for comparisons, measurement standards are needed. The standardization decision requires a balance between the need for a method of minimizing adjustment required because of differences in time, place, people, etc., and the need to differentiate. The issue is concerned with procedure versus precision. The procedural aspect of standardization is illustrated by the practice of using a deflation index to facilitate comparisons of Gross National Product over time. The construction of suitable standards is obviously complex and difficult.

The term accuracy in itself involves a measurement. Accuracy is concerned with the extent to which a measurement deviates from the "truth." The long-term aspect of accuracy is control. This means that measurements require periodic verification of their legitimacy.

These areas of consideration provide a framework for thinking about measurement activities. A different way of looking at the structure of the measurement process as it applies to management is to divide the process into important elements to permit improved clarity of relationships. Elements of the process identified by Paul Kircher include:

1. Determination of the objective of the business entity, the purpose which is to be served in a particular situation.
2. Determination of the types of factors which might serve to attain the objective.

3. Selection of the key aspects of the factors, the aspects which are to be measured.

4. Choice of (a) a measuring method, (b) a measuring unit.

5. Application of the measuring unit to the object to be measured--the central action of measurement.

6. Analysis of the measurement--relating it to other measurements (other in time or in kind).

7. Evaluating the effectiveness of the measurement by determining the extent to which it assisted in the attainment of the objective.[1]

R. W. Shephard expresses concern with "the preoccupation . . . with methods . . . for manipulating measurements, and, . . . by the small amount of attention that appears to be given to the problems of making these measurements."[2] Although his concern is specifically identified with operational research, it appears to be pertinent to the general area of measurement.

Shephard examines measurement in the physical sciences as a starting place to achieve understanding of what is involved. He defines measurement "as the assignment of numerals to events or objects according to rules, and the distinction between various types of scales--nominal, ordinal, interval, and ratio--is essentially on the basis of the mathematical transformations that leave the scale form invariant."[3] In addition to the classification by type of scale, Shephard points out that "measurements may also be classified according to whether they are

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[1]Kircher, "Fundamentals of Measurement," p. 362.

[2]R. W. Shephard, "An Appraisal of Some of the Problems of Measurement in Operational Research," in Management Systems, ed. by Peter Schoderbek (New York: John Wiley & Sons, Inc., 1967), p. 373.

[3]Ibid., p. 374.

basic (lb., ft., etc.) or derived (lb./ft.^{3}, ft./sec.),"[1] or by methods used to take them. "These methods are either direct, as when an unknown length is measured by placing a foot rule alongside, or indirect, as when temperature, for instance, is measured in terms of a column of mercury."[2]

He indicates that "indirect measurement will remain of extreme importance even if the connecting relationships are not known; the possibilities of measuring goodwill in terms of orders lost, or morale in terms of productivity are encouraging even though the causal connections are elusive."[3] Shephard also points out the problems of measurement upon inclusion of the human variable. A single scale of values fails to represent subjective magnitudes such as utility. The typical approach to this aspect of measurement appears to be to attempt development of a scale representative of a population norm against which deviations can be measured.

Methods of measuring utility and risk have been proposed, but at the current stage of development, these are somewhat crude. Practical applications appear to be minimal. As pointed out by Baumol[4], the von Neumann-Morgenstern Utility Index is among the most recent

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[1] Ibid.

[2] Ibid.

[3] Ibid., p. 375.

[4] Baumol, Economic Theory and Operations Analysis, p. 459, and pp. 512-28.

developments; however, actual practical employment of the concept is apparently rare. Vincent R. LoCascio,[1] of Peat, Marwick, Mitchell & Co., has proposed an approach for development of a utility function to portray management's attitudes which is based on an ordered ranking of one hundred or more graphically represented distributions, from which it is claimed that a quantitative representation can be developed. Although this approach may be of theoretical importance, it appears to be somewhat rough and subject to misrepresentations.

Stafford Beer indicates that measurement depends upon a chain of comparisons linking the item measured to a standard which "must in turn be hedged with many qualifications about how it is to be measured, to what accuracy, and in what conditions."[2] He illustrates the difficulty encountered in measurement by an example in which six similar, but not identical, machines have been subjected to an alleged improvement at the end of period six in Table 1. The objective is to determine whether or not the change was an improvement. Two measurement approaches were used to make the determination. It is noted that there are twenty-six productive and ten unproductive periods both before and after the change in Table 1.

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[1]Vincent R. LoCascio, "The Cost of Capital in an Uncertain Universe," Financial Executive, October, 1970, pp. 70-78.

Stafford Beer, Decision and Control: The Meaning of Operational Research and Management Cybernetics (London: John Wiley & Sons, 1966), p. 11.

TABLE 1

NUMBER OF ITEMS PRODUCED PER PERIOD ON SIX MACHINES*

Machines	Periods											
	1	2	3	4	5	6	7	8	9	10	11	12
A	572	570	568	nil	574	570	572	nil	570	572	nil	572
B	550	548	nil	552	nil	nil	550	554	554	nil	552	550
C	606	698	600	612	nil	609	610	615	nil	nil	612	nil
D	nil	588	586	588	586	590	nil	nil	588	592	nil	590
E	543	nil	nil	nil	535	550	560	565	558	545	550	548
F	548	546	545	540	nil	542	544	542	546	548	nil	548

* Beer, Decision and Control, p. 71.

Table 2 shows the result of one method of measuring the effect of the change.

TABLE 2

MACHINE OUTPUT COMPARISON (1)*

Measurement	Before	After
Total Output	14,816	14,707
Average	569.8	565.7

*Adapted from table in Beer, Decision and Control, p. 12.

This measurement shows that the change was not an improvement. A second measurement approach, the results of which are shown in Table 3, yields a different conclusion.

TABLE 13

MACHINE OUTPUT COMPARISON (2)*

Machine	Average Before Change	Average After Change
A	570.8	571.5
B	550.0	552.0
C	605.0	612.3
D	587.6	590.0
E	542.7	554.3
F	544.2	545.6

*Adapted from table in Beer, Decision and Control, p. 12.

Using this approach to measurement, production after the change is shown to be higher for every machine. The issue to be decided is which of the methods is relevant--the one that takes machine differences into account or the aggregate. It might also be shown that neither is relevant; that the before and after outputs can be attributed to chance.

An additional simple example that illustrates problems inherent in measurement is shown in Table 4. The determination as to which of the proposals is better requires consideration of factors other than those measured.

TABLE 4

ALTERNATIVE MEASUREMENT SCHEMES

	Project A	Project B
Revenue	$1,000	$2,000
Costs	- 500	- 500
Result No. 1	$ 500	$ 800
Result No. 2	50%	40%

The objective of this section has been to examine the nature of measurement so as to be aware of some of the factors that must be considered in a measurement scheme. To generalize, measurement involves quantification; development of surrogates with which to characterize qualitative elements. Quantitative measures are advantageous in that they are explicit. By using quantification, comparisons and conceptualization are facilitated. Quantification involves the dangers of ritualization, distortion, and incompleteness with respect to showing the whole element or phenomenon being measured. The preceding investigation of the nature of measurement and the difficulties expected to be encountered in measurement systems provides a frame of reference for the following section which is concerned with the objectives of performance accounting systems.

Performance Budgeting and Accounting Objectives

In order to relieve some of the complexities of managing large organizations, a need exists for systems that will permit decentralized decision-making and at the same time facilitate overall centralized control. This includes the need for concepts of management self-appraisal at lower levels and for top management evaluation of the performance of organizational units, output categories and individual managers. In business organizations, profit measurement and analysis is generally accepted as an overall index of output efficiency. Among the important considerations required in using such an index are goal congruity between the individual and the organization as well as balance between short-run results and the long-term effects of operations.

Performance evaluation is concerned with organizational units and output. Performance measurement in financial terms is a function of cost and management accounting within the broader area of planning, budgeting, and controlling. It involves classification of costs and revenues into categories useful for analysis. Performance measurement and evaluation, viewed as elements of organizational control, are put into perspective by Rodney E. Schneck in a summary of the process of control:

> 1. A desired value or purpose is needed as a standard of acceptable performance.
> 2. The collection of data, about actual performance or behavior. (This is a problem of measurement and information feedback.)
> 3. Comparison and evaluation of this actual performance against desired standard or criteria are needed.

4. The undertaking of corrective action if actual performance is unsatisfactory.

5. Where necessary, changing the desired standard or value of acceptable performance.[1]

Schneck also elaborates on the role of organizational goals, pointing out that goals serve three functions.

> First, they provide a desired future state which in turn orders and directs organizational activities and provides criteria for decision-making. Second, goals serve as standards by which management and all interested parties can measure effectiveness and efficiency of the firm's past performance. Third, goals provide an important source of legitimacy for the firm in the larger social system.[2]

He also explains the complex and continuing process whereby the broad, ambiguous, abstract and ultimate goals of organizations (survival and maintenance of existence) are broken down into concrete and operational goals through factorization, giving consideration to internal and environmental interactions, influences and constraints. Goal displacement, manifested in the case where operating goals may be "primarily concerned with preserving the existing organizational structure and maintaining managerial power rather than efficiently accomplishing the stated purpose of the firm,"[3] or "when strict adherence to rules, procedures, and regulations become an end in itself,"[4] is seen as a

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[1]Rodney E. Schneck, "The Management of Large Corporations," in Topics in Managerial Accounting, ed. by L. S. Rosen (Toronto: McGraw-Hill Company of Canada Limited, 1970), p. 33.

[2]Ibid., p. 24.

[3]Ibid., p. 27.

[4]Ibid.

hindrance to efficient organizational performance and should be recognized in performance measurement and evaluation systems. Recognition of the problems of "priorities, suboptimizations, inconsistencies, and internal conflict"[1] inherent in goal multiplicity is also of importance to performance accounting systems.

In a broad sense, budgeting is viewed as a means by which performance and goals are related. Through classification, analysis, quantification, integration, and evaluation, improved performance is thought to be realized. A sampling of various viewpoints (summarized) with respect to the functions of budgets serves to illustrate the perceived relationship to performance evaluation.

Sord and Welsch[2] attribute the following functions to budgets: (1) forecasting conditions, (2) planning to implement goals, (3) estimating future financial position, (4) controlling expenditures, and (5) appraising performance. In this view budgets serve to integrate financial planning by establishing and formalizing profit objectives.

The view put forth by Herman C. Heiser[3] identifies budget functions which include, inter alia, quantitative measuring and reporting of performance to permit analysis of deviation and translation to terms

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[1]Ibid., p. 26

[2]Burnard H. Sord and Glenn A. Welsch, Business Budgeting: A Survey of Management Accounting and Control Practices (New York: Controllership Foundation, Inc., 1958).

[3]Herman C. Heiser, Budgeting Principles and Practice (New York The Ronald Press Company, 1959).

of profit and loss. Heiser points out that the budget is a financial representation of non-monetary things.

Charles T. Horngren[1] explains the usefulness of budgets by the categories of (1) formalization, whereby forced explicitness requires planning and preparation for change, (2) performance judgment, of activity and personnel, and (3) integration, through coordination and communication.

In an approach to budgeting as a plan to guide operations and to serve as one aspect of performance evaluation, Shillinglaw[2] indicates that much of the value of budgeting is related to the preparation process, and through self-examination, forced quantification, anticipation of situational results, and participation, objectivity is stimulated, profitability and interorganizational consistency are examined, and commitment to objectives is realized.

The budget as envisioned by Anthony

> is useful: (1) as a device for making and coordinating plans, (2) for communicating these plans to those who are responsible for carrying them out, (3) in motivating managers at all levels, and (4) as a standard with which actual performance subsequently can be compared.[3]

With respect to performance evaluation and appraisal, it is

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[1]Charles T. Horngren, Accounting for Management Control: An Introduction (2d ed.; Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970), pp. 188-89.

[2]Gordon Shillinglaw, Cost Accounting Analysis and Control (rev. ed.; Homewood, Illinois: Richard D. Irwin, Inc., 1967), p. 14.

[3]Robert N. Anthony, Management Accounting, p. 505.

important to understand the multiplicity of uses of budgets and the inherent dangers of oversimplification of complex processes and of accepting surrogates as goals. The intended use of budgets should be considered along with the individuals concerned and the specific situation. The following view of Peter F. Drucker with respect to controls can be applied to the needed awareness of the role of budgeting in performance measurement and evaluation:

> It is, therefore, important today when our capacity to design and to manipulate controls is increasing so fast, to think through what controls in a social situation and in a particular business enterprise have to be and have to do, and also what they cannot be and must not attempt to do.[1]

A strict distinction of the separate roles of budgeting and accounting with respect to performance measurement and evaluation is not feasible. It appears worthwhile, however, to attempt to narrow the field of consideration. For this reason, the following discussion emphasizes the role of accounting as it relates to performance measurement and evaluation.

Charles T. Horngren[2] views an effective accounting system as providing information for external reporting, internal reporting for planning and control, and for making special decisions. Internal

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[1]Peter F. Drucker, "Controls, Control and Management," in Management Controls: New Directions in Basic Research, ed. by Charles P. Bonini, Robert K. Jaedicke, and Harvey M. Wagner (New York: McGraw-Hill Book Company, 1964), p. 288.

[2]Charles T. Horngren, "Choosing Accounting Practices for Reporting to Management," in Contemporary Issues in Cost Accounting, ed. by Hector R. Anton and Peter A. Firmin (Boston: Houghton Mifflin Company, 1966), pp. 3-20.

reporting and special decision analyses are the domain of management accounting. Its objective is management improvement and improved effectiveness and efficiency. As pointed out by Horngren, "The job of serving both internal and external demands can be an imposing one."[1] Citing H. A. Simon, he differentiates the three functions of "score keeping," "attention directing," and "problem solving" and indicates that each should be performed by distinct and separate accountants.[2] The Simon study cited by Horngren was based on the question: "How should a company's accounting department be organized in order that the data it assembles will be of the greatest usefulness to the operating executives of the business in making decisions and solving problems?"[3] The pattern of accounting organization proposed by Simon includes examples in which

> at the factory department level one or more accounting analysts, thoroughly conversant with operations, who can help department heads interpret and trace costs through the monthly and other periodic cost statements exist. At higher levels, on the other hand, it was suggested that there might be needed a small number of strategically placed groups of analysts largely occupied with special studies rather than periodic reports--analyzing the cost and savings associated with possible changes in operating methods and equipment.[4]

For purposes of analyzing the functional relationships of performance accounting and the organization, the foregoing appears to be indicative

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[1] Ibid., p. 4.

[2] Ibid., p. 5, citing Administrative Behavior, (2d ed.), p. 20.

[3] H. A. Simon, Administrative Behavior (2d ed.; New York: The Macmillan Company, 1957), p. xix.

[4] Ibid., p. xx.

of the requirement to ensure that systems should give consideration to careful analysis of the needs of individuals and the organization as a whole.

K. M. S. Wilson[1] indicates that what is needed in management accounting are measures to ascertain goal and sub-goal consistency, sub-goal to sub-goal consistency, and sub-goal to actual performance consistency. He calls this the need to search for relationships in cost behavior. Wilson states that the

> transition from conventional to control accounting, via cost and management accounting as evolutionary phases, shifts the emphasis from rules to hypotheses. . . . Accountants must learn to think in terms of empirical hypotheses rather than legalistic rules."[2]

This approach emphasizes output rather than processes.

Under the subhead of "Guides to Selection of Management Accounting Practices,"[3] Horngren emphasizes that the system should yield relevant, valid and pertinent, rather than accurate and precise information. He also states that the principle tasks of management accounting include directing attention, providing clues, raising pertinent questions, and inducing desired behavior. Horngren also gives importance to the principle that standards operate as a norm only to the extent that they are accepted by those responsible as a fair measure of

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[1]R. M. S. Wilson, "Perspectives in Accounting for Control," Management Accounting Journal of the Institute of Cost and Works Accountants, Vol. 48, No. 8, (August, 1970), pp. 285-94.

[2]Ibid., p. 294.

[3]Horngren, "Choosing Accounting Practices," p. 6.

performance, and to the extent that the items used for measurement are controllable.[1] This concept, in which participation is seen to be an important element of performance accounting, appears to be widely accepted, yet it is subject to controversy. The participative concept is typified by McGregor[2] as the approach in which the supervisor enters the budget process after the subordinate has set his own performance goal. As a consequence of experimental research, Andrew Stedry questions "the universal validity of this recommendation, for under the experimental situation if 'management' decides on a 'high' (performance) budget, its use of MacGregor's [sic] participation plan coincides with the worst possible result. On the other hand, it would probably help performance in a 'low' budget situation."[3] Stedry's experiment was concerned with the effect of different aspiration levels on performance and goals. Becker and Green[4] challenge Stedry's conclusion on the basis of the method used to measure aspiration level, and attribute success to participative methods through a chain of reasoning involving the effect of group cohesiveness on production. The controversy

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[1]Ibid., p. 11.

[2]Douglas McGregor, "An Uneasy Look at Performance Appraisal," Harvard Business Review, (May-June, 1957), pp. 89-94.

[3]Andrew C. Stedry, Budget Control and Cost Behavior (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1960), p. 91.

[4]Selwyn Becker and David Green, Jr., "Budgeting and Employee Behavior," Journal of Business, Vol. 35, No. 4 (October, 1962), pp. 392-402.

continues.[1] It appears that performance accounting (measurement and evaluation) does have performance motivation among its objectives, yet the operatives in this area remain subject to further research. As Birnberg and Nath point out, "the Becker-Green hypothesis was based upon various laboratory and field studies. It has not yet been tested in the managerial accounting context."[2] A similar comment could be made with respect to Stedry's conclusion. His experiment was a laboratory study involving sums under ten dollars, therefore raising the issue of non-transferrability to larger sums because of utility disparities.

In a discussion of a system using standards and variances, Myron L. Gordon indicates that for a system of accurate performance measurement "a set of procedures for classifying the transactions of the firm must be specified and incorporated in the system which eliminates from the supervisor's variance account the variances due to factors beyond his control."[3] He concludes, however, that a system of standards and variances is an aid to judgment which can be used with

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[1]See Andrew C. Stedry, "Budgeting and Employee Behavior: A Reply," and Selwyn W. Becker and David Green, Jr., "Budgeting and Employee Behavior: A Rejoinder to a Reply," Journal of Business, Vol. 37, No. 2, (April, 1964), pp. 195-202 and 203-05.

[2]Jacob G. Birnberg and Raghu Nath, "Implications of Behavioral Science for Managerial Accounting," in Accounting and Its Behavioral Implications, ed. by William J. Bruns, Jr., and Don T. DeCoster (New York: McGraw-Hill Book Company, 1969), p. 10.

[3]Myron L. Gordon, "Cost Allocations and the Design of Accounting Systems for Control," in Contemporary Issues in Cost Accounting, ed. by Hector R. Anton and Peter A. Firmin (Boston: Houghton Mifflin Company, 1966), p. 183.

analysis in performance evaluation. The accounting system function is to put transactions into categories "which allow the speedy selection of the relevant data for each problem."[1]

With regard to operations research and audit functions, Robert W. Trueblood believes that "accountants must be prepared to consult on the design of these new information systems and to counsel on the changes in operations methods as they will effect the audit function."[2] In a more general sense, then, if accounting is to serve management for measurement and evaluation purposes, it appears that these functions must be integrated with developing operational methods.

Summary

The objectives of performance measurement and evaluation are as broad as those of management in general. Performance measurement and evaluation systems are seen as facilitative to management, and therefore the primary objective is that they should be tailored to ensure appropriateness to the individuals involved and to the prevailing environment and situation. The following summary, although relatively general in nature, covers the main concepts and views investigated in this chapter.

Measurement is a complex process involving a multitude of

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[1]Ibid., p. 184.

[2]Robert M. Trueblood, "Operations Research--A Challenge to Accounting," in Contemporary Issues in Cost Accounting, ed. by Hector R. Anton and Peter A. Firmin (Boston: Houghton Mifflin Company, 1966), p. 473.

of difficulties and dangers. It involves quantification and development of surrogates with which to characterize qualitative phenomena in such a way as to facilitate conceptualization and comparison.

Performance measurement and evaluation are concerned with efficiency, effectiveness, and economy; with success in accomplishment of goals. Within the broad areas of planning, budgeting and controlling, performance measurement and evaluation are generally considered to be identified as being among the functions of cost and management accounting. The objectives of performance measurement and evaluation include:

1. Provision of a basis for forecasting and planning; for setting operative organizational and individual goals to serve as standards or criteria for evaluation of activities and personnel.

2. Integration of the goals of the organization and the individual members of the organization. This is frequently purported to be a function of the degree of participation in setting goals. Performance measurement and evaluation assumes that measured phenomena are controllable. Goal to goal congruity is seen to be improved by recognizing and utilizing the research applicable to motivational aspects of performance measurement and evaluation and the behavioral implications of accounting.

3. Communication of timely, relevant, valid, and pertinent information for special decisions and problem solving, including results from the use of the techniques of operations research and behavioral science.

The objective of a performance measurement accounting system is to simplify complexity, to act as an aid to judgment. The system itself should be subject to continuing appraisal to determine whether or not it contributes to management and whether or not managers are making use of the system.

CHAPTER III

THE RESPONSIBILITY CENTER CONCEPT

Introduction

Performance evaluation in financial terms is frequently associated with the economic theory which "asserts that the objective of the firm is to maximize net revenue in the face of given prices and a technological determined production function."[1] This assertion as to the primacy of the profit goal has been the subject of much debate.[2] The use of financial terms in performance measurement and evaluation is not limited to organizations participating in an economical environment in which resources are allocated through a price system under conditions of perfect competition. Schemes in which monetary terms are used as a common denominator to facilitate relating inputs and outputs, allocating resources, and establishing goals have been applied to organizations for which financial profit is neither a primary nor a secondary goal. Aaron Wildansky characterizes a budget "as a series of goals with price tags

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[1]Richard M. Cyert and James G. March, A Behavioral Theory of the Firm (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1963, p. 5.

[2]For a concise summary of several viewpoints concerning goals of the firm along with challenges and defenses of the profit goal, see Ibid., pp. 9-21.

attached. . . . a mechanism for making choices among alternative expenditures."[1] By application of this concept, it follows that financial measurements can be of value in performance evaluation situations where financial profit is not appropriate as an index of effectiveness and efficiency.

In this chapter some of the methods used to apply financial performance measurement will be investigated. For this purpose the concept of the responsibility center as described by Anthony[2], Horngren[3], and others will be used as a basis for the review.

Responsibility Centers

In describing responsibility centers as subdivisions of a larger organization, Anthony[4] points out that each has inputs and outputs. Measurement of the inputs and outputs in terms of quantity and quality is facilitated by using the common denominator of money; however, total recorded transactions may be an approximation of inputs/outputs because of excessive effort required to translate into monetary terms or because measurement is not feasible. In monetary terms inputs are classified

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[1]Aaron Wildavsky, The Politics of the Budgetary Process (Boston: Little, Brown and Company, 1964), p. 2.

[2]Robert N. Anthony, "Note on Responsibility Centers," in Management Control Systems Cases and Readings, ed. by Robert N. Anthony, John Dearden, and Richard F. Vancil (Homewood, Illinois: Richard D. Irwin, Inc., 1965), pp. 165-71.

[3]Charles T. Horngren, Accounting for Management Control, pp. 324-41.

[4]Anthony, "Note on Responsibility Centers."

as costs or expenses; outputs, as income or revenues. Profit is the difference between output and input.

Anthony[1] classifies responsibility centers into the categories of expense centers, financial performance centers, and investment centers. "In an expense center, inputs are measured in monetary terms . . . but no attempt is made to measure output in monetary terms or to relate inputs to outputs in monetary terms."[2] A financial performance center (a broadening of the concept of a profit center in business) can be applied to profit-seeking organizations or to non-profit organizations. "In this type of responsibility center, both inputs and outputs are measured in monetary terms, and the relationship between them is calculated."[3] The broader concept of an investment center is characterized by measurement of "profit related to the assets employed."[4]

In an investment center or a financial performance center, profit is seen to be indicative of effectiveness and efficiency subject to limitations with respect to inappropriateness of money as an indicator of input/output, inaccuracy of standards, and short-run/long-run conflicts. Cost relationships and comparisons are used as the means of measuring performance in an expense center.

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[1] Ibid., p. 167.

[2] Ibid.

[3] Ibid.

[4] Ibid.

Expense Centers

Cost or expense is the basis for expense center performance evaluation in monetary terms. There are a variety of ways of looking at costs. Cost classifications appear to be among the most important considerations in expense center performance systems. Stafford Beer[1], in an article urging adoption of operational research techniques in development of cost standards, considers the problem of cost groupings as a major issue. He speculates "that for one reason or another, notably perhaps for the ultimate reason that policy makers just cannot assimilate thousands of detailed results into either their own minds or their managerial decisions, cost groups must be a feature of accountancy."[2] Generally, costs are broadly classified by objects (inputs of labor, material, services), products or programs (outputs of material or services), and activities (responsibility centers). This breakdown involves a three-dimensional way of looking at costs. Each of these categories can be further subdivided into several subdivisions. One subdivision within the activity category that is important to responsibility accounting is the distinction between controllable and uncontrollable costs. "Controllable costs are those which may be directly regulated

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[1]Stafford Beer, "Operational Research and Accounting," in Studies in Cost Analysis, ed. by David Solomons (2d ed.; Homewood, Illinois: Richard D. Irwin, Inc., 1968), p. 76.

[2]Ibid.

at a given level of managerial authority."[1] In practice, it is often difficult to resolve the distinction between controllable and uncontrollable costs. Keller and Ferrara point out that "there is a responsibility 'slot' for each and every cost element."[2]

This point is illustrated by Horngren with respect to the time dimension of controllable costs and the controllability of a long-term lease, in which he indicates that "over the long run, top management must determine the commitments which are reflected in such accounts as rent, depreciation, and property taxes."[3]

The distinction between controllable and non-controllable costs applies to a particular responsibility center and implies that the amount is "significantly influenced by the actions of the manager of that responsibility center."[4]

Another way of looking at costs for purposes of performance evaluation involves a normative concept as opposed to actual costs. Systems of accumulating costs can be "divided into two broad classes: historical costs and predetermined costs."[5] The distinction is between

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[1]Horngren, Accounting for Management Control, p. 328.

[2]I. Wayne Keller and William L. Ferrara, Management Accounting for Profit Control (2d ed.; New York: McGraw-Hill Book Company, 1966), p. 247.

[3]Horngren, Accounting for Management Control, p. 328.

[4]Anthony, Management Accounting, p. 469.

[5]John J. W. Neuner, Cost Accounting Principles and Practice (4th ed.; Homewood, Illinois: Richard D. Irwin, Inc., 1953), p. 461.

the use of actual costs and predetermined standard costs as a basis for application to product or cost center. Typically, complete standard cost systems employ flexible budgets and are designed to permit analysis of variances with respect to price, quantity, volume, efficiency and mix.[1] Under standard cost systems "variance accounts are inserted in the system at whatever point the shift from actual to standard is made."[2]

For purposes of assigning costs to products a distinction between direct costs and indirect costs is made. "Direct costs are those that are specifically traceable to or caused by the manufacture of a product or the carrying out of a program."[3] "Indirect, or overhead, costs are those costs not associated directly with the products worked on; including all manufacturing costs other than those classified as direct material and direct labor."[4] In contrasting direct costs with controllable costs, Anthony points out that "all controllable costs are direct since by definition an allocated cost is not controllable, but not all direct costs are controllable."[5] Direct costs that may not be

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[1]Harold Bierman, Jr., Topics in Cost Accounting and Decisions (New York: McGraw-Hill Book Company, 1963), pp. 9-13.

[2]Anthony, Management Accounting, p. 375.

[3]Ibid., p. 361.

[4]Ibid., p. 364.

[5]Ibid., p. 470.

controllable cited by Anthony include depreciation and rental charges.[1] Under the previous definition, these charges appear to fit into the category of indirect costs. For purposes of contrasting direct/indirect costs with controllability, it seems that direct costs would generally be considered as controllable and that indirect costs could be either uncontrollable or controllable.

Discussions of costs also distinguish fixed, semi-variable, and variable as a way of establishing relationships. "Variable costs are those which are expected to fluctuate, in total, directly in proportion to sales, production volume, or other measure of activity."[2] Fixed costs are those which are not expected to change in total within the current budget year, regardless of fluctuations in the volume of activity."[3] Horngren identifies semi-variable costs as "mixed costs",[4] indicating that they are "a blend of two unlike cost behavior patterns."[5] Anthony[6] prefers the term "non-variable" costs rather than "fixed" costs because of the implication that "fixed" costs are not subject to change. He points out that non-variable "costs are incurred with the passage of time, and

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[1]Ibid.

[2]Horngren, Accounting for Management Control, p. 233.

[3]Ibid., p. 240.

[4]Ibid., p. 241.

[5]Ibid., p. 242.

[6]Anthony, Management Accounting, p. 452.

are independent of the level of activity within a time period."[1] When coupled with revenue information, this approach leads to cost-volume-profit analysis using breakeven charts or profit-graphs, and contribution or marginal income approach to performance evaluation.[2] Direct costing has as its basic characteristic "the segregation of expenses into fixed and variable components."[3] From the point of view of an expense center, variable costs and controllable costs are not synonymous.[4] Anthony[5] classifies expense center costs into categories of engineered costs (e.g., direct labor or direct material), committed costs (e.g., depreciation), and managed costs (e.g., research, public relations or legal). Within broad limits, establishment of standards for managed costs requires considerable judgment.[6] Different approaches to control apply to each of these categories.[7] Engineered costs are based on specifications, which permits setting reasonably reliable standards.

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[1]Ibid.

[2]Ibid., pp. 461-67, and Horngren, Accounting for Management Control, pp. 245-47.

[3]John R. E. Parker, "Perspectives on Direct Costing," in Contemporary Issues in Cost Accounting, ed. by Hector R. Anton and Peter A. Firmin (Boston: Houghton Mifflin Company, 1966), p. 167.

[4]Anthony, Management Accounting, pp. 470-71.

[5]Anthony, "Note on Responsibility Centers," p. 170.

[6]Robert N. Anthony, "Notes on Managed Costs," in Management Control Systems Cases and Readings, ed. by Robert N. Anthony, John Dearden, and Richard F. Vancil (Homewood, Illinois: Richard D. Irwin, Inc., 1965), pp. 172-75.

[7]Anthony, Management Accounting, pp. 473-76.

Managed costs, also called discretionary costs or programmed costs, are not subject to such uniform acceptability of what is correct. Committed costs result from previously-made commitments. Furlong and Robertson identify this concept by the term "domino costs,"[1] and indicate that these costs have a tendency toward constancy over several periods. They point out two dangers inherent in "domino costs". The first is that the tendency toward constancy over time leads to the conclusion that these costs are not subject to management control and the "tendency to . . . restrict future alternative courses of action."[2] In addition, because of the nature of these committed costs, current period costs are to some extent the result of past actions and, therefore, are not indicative of present performance. Newman and Brunell,[3] in developing a proposal related to the concept of committed costs, urge expansion of the time frame for evaluating the impact of costs. It appears that the nature of committed costs and managed costs with respect to time are important aspects of performance evaluation.

Classification of costs into functional categories (how the cost was used: e.g., manufacturing, selling, or administration) is one more

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[1]William L. Furlong and Leon H. Robertson, "Matching Management Decisions and Results," in Topics in Managerial Accounting, ed. by L. S. Rosen (Toronto: McGraw-Hill Company of Canada Limited, 1970), p. 322.

[2]Ibid., p. 325.

[3]Louis E. Newman and Sidney Brunell, "Different Dollars," in Studies in Cost Analysis, ed. by David Solomons (2d ed.; Homewood, Illinois: Richard D. Irwin, Inc., 1968), pp. 148-57.

way of looking at cost relationships, according to Bierman.[1] Horngren indicates that a useful classification for allocation of costs may be by use of the categories of "(1) operating (line) departments and (2) service (staff) departments."[2] In expanding this approach, Horngren cautions that functional costing attempts often "involve flimsy assumptions concerning what costs are pertinent and what unit should be used as the base."[3]

Variable time periods are typically not considered as a way of classifying costs. Time periods are traditionally assumed as a given. Even so, a time period classification must be chosen, even if by default. Nichols and Grawoig discuss "the possibility of using some basis other than time in the reporting of accounting data by allowing the time factor to be variable and holding some other factor constant."[4] Reports developed on the basis of a fixed amount of sales rather than on a fixed time period would reverse the fixed/variable cost relationship. Their proposal would not eliminate reports by time period but would supplement them. The idea of periodicity on the basis of something other than time emphasizes the importance of thinking about time with respect to costs.

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[1]Harold Bierman, Jr., Topics in Cost Accounting and Decisions, p. 5.

[2]Horngren, Accounting for Management Control, p. 334.

[3]Ibid., p. 340.

[4]Arthur C. Nichols and Dennis E. Grawoig, "Accounting Reports with Time as a Variable," in Topics in Managerial Accounting, ed. by L. S. Rosen (Toronto: McGraw-Hill Company of Canada Limited, 1970), p. 332.

In the preceding paragraphs, a number of ways of looking at cost behavior relationships have been mentioned. These general ways of looking at cost relationships included:

1. Activity or Responsibility Center.
2. Product.
3. Object Classification.
4. Controllable/Noncontrollable (by responsibility center).
5. Actual (historical)/Standard (predetermined).
6. Non-variable (time related)/Variable (volume related).
7. Direct/Indirect (product).
8. Engineered/Managed, Programmed, or Discretionary/ Committed or Domino.
9. Functional.
10. Periodicity.

These classifications are not mutually exclusive nor are they all-inclusive. Characteristically, overlap among the categories provides for multi-dimensional analysis and facilitates using a single data set for more than a single purpose.

As pointed out in a research paper published by the N. A. (C.) A., cost uses, cost classifications, and cost behavior were found to be "so interwoven that they were the warp and weft of the same fabric."[1] The report also states: "Costs are used for a variety of purposes, and the

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[1]N. A. (C.) A., "The Uses and Classification of Costs," in Studies in Cost Behavior, ed. by David Solomons (2d ed.; Homewood, Illinois: Richard D. Irwin, Inc., 1968), p. 105.

same cost data cannot serve all purposes equally well."[1] Essential uses of cost data are classified in the study as "(a) Determination of periodic profit, including inventory valuation; (b) Budgetary planning; (c) Cost control; (d) Pricing policy; (e) Current application of plans and policies."[2]

Performance evaluation is a sub-category of cost control. For this purpose, the concept of an expense center, by definition, requires classification of costs by activity. In addition, the breakdown of costs into controllable and noncontrollable elements is stressed with respect to expense centers. This classification, although fairly easy to conceptualize, is difficult to realize in actual practice. A third important consideration for purposes of performance measurement and evaluation is the system involving comparison of actual costs and standard costs, which includes analysis of variances. The distinctions among engineered costs, managed costs, and committed costs also deserve consideration with respect to performance measurement and evaluation.

Considering only these four important categories, the difficulties involved in using monetary terms as a measure of performance evaluation becomes apparent. In practice, cost systems are rarely developed to serve a single purpose exclusively because of the duplicative

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[1] Ibid., p. 106.

[2] Ibid.

effort involved. This is seen as adding complexity to systems of financial performance measurement and evaluation.

Profit Centers

In addition to costs, financial performance evaluation of profit centers or financial performance centers[1] takes revenue into consideration. The difference between revenues and costs is the focus of measurement.

One definition establishes the following criteria for the existence of profit centers:

> 1. It must have two or more units for which separable measures of revenue and expense are obtained.
> 2. The management of these units must have considerable control over the unit's expense and revenue. (Presumably, authority to influence profit must accompany any true responsibility for the size of the profit.)
> 3. Each unit's profit must be calculated and reported regularly to top management as a part of the unit's performance.[2]

Characteristics of profit centers cited by Joel Dean[3] include operational independence, access to sources and markets, separable costs and revenues, and management intent. To have operational independence, a "manager must have a large measure of control over most, if not all, operational decisions that affect his profits."[4] This includes "determining

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[1]Anthony, "Note on Responsibility Centers," p. 167.

[2]John J. Mauriel and Robert N. Anthony, "Misevaluation of Investment Center Performance," Control Series Part III: Reprints from Harvard Business Review, March-April 1966, p. 11.

[3]Joel Dean, "Decentralization and Intracompany Pricing," Decentralized Management Series: Reprints from Harvard Business Review, May-June 1960, p. 107.

[4]Ibid.

the volume of production, methods of operation, product mix, and so forth, subject only to broad policy discretion from top management."[1] Dean indicates that the profit center manager "must be genuinely free to buy and sell in alternative markets both outside the company and inside."[2] "The required access to sources and markets cannot be created by edict; outside sources or markets must either be there or be capable of creation."[3] The requirement for separable costs and revenues permits establishment of an "economically realistic price of end products"[4] and "eliminates service-type staff activities from consideration."[5] Under the heading of management intent, Dean specifies that "only if the basic goal is profits should the operation be treated as a profit center."[6] This final point is emphasized by Dean in an example wherein a legal department could be operated as a profit center, but because the profit motive does not control decisions, it should not. In marginal cases, such as a steel production operation for an equipment manufacturer, the profit center concept involves the difficulties of price negotiation but leads to beneficial allocation and recognition of the value of services received by other centers.

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[1] Ibid.

[2] Ibid.

[3] Ibid.

[4] Ibid.

[5] Ibid.

[6] Ibid.

The normative profit center criteria proposed by Dean appear to be more restrictive than those established by Mauriel and Anthony.[1] Both views recognize the profit center as a means of relieving the complexity of large organizations through establishment of some degree of economic independence. Anthony[2] recognizes the problem of output pricing but apparently believes that it can frequently be overcome. He states that "with some ingenuity, practically any expense center could conceivably be turned into a profit center, because some way of pricing its output can usually be found."[3] He, too, agrees that "when top management requires responsibility centers to use a certain service (e.g., internal auditing), the service probably should be furnished at no charge, and the service unit, therefore, should not be a profit center."[4] Both Dean and Anthony recognize the potential detrimental effects of conflict that can arise if competitive aspects receive excessive emphasis. Shillinglaw indicates that "the need for measuring the profit of subordinate executives arises wherever management responsibility is decentralized--that is, delegated to semi-autonomous profit centers."[5] He delineates

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[1]Mauriel and Anthony, "Misevaluation of Investment Center Performance," p. 11.

[2]Anthony, Management Accounting, p. 428.

[3]Ibid., p. 429.

[4]Ibid.

[5]Gordon Shillinglaw, "Guides to Internal Profit Measurement," Decentralized Management Series: Reprints from Harvard Business Review, March-April 1957, p. 67.

four important purposes of internal profit reports:

1. As a guide to current operating or "tactical" decisions.
2. As a basis for evaluating managerial performance.
3. As a basis for profit trend and variance analysis.
4. As a starting point for long range investment decisions.[1]

He distinguishes reports into the categories of "routine by-products of normal accounting procedure"[2] and special reports, specifying that the routine periodic reports are characteristically used for product line pricing and emphasis decisions and for evaluation of divisional management. "These applications are immediate and short range; for questions of this sort the time horizons are relatively short."[3]

The objectives of setting up an internal profit system proposed by Joel Dean "are, first the guidance of the division or other internal managements whose results are being measured, and, second, the assistance of top management and its staff in their tasks of appraising and guiding divisional performance."[4] He observes that there is a tendency to follow conventional financial accounting principles in developing internal financial statements and urges recognition of the differences between external and internal statement uses and restrictions. As he points out, "the situation is very different where reports are made

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[1]Ibid.

[2]Ibid.

[3]Ibid.

[4]Joel Dean, "An Approach to Internal Profit Measurement," in Contemporary Issues in Cost Accounting, ed. by Hector R. Anton and Peter A. Firmin (Boston: Houghton Mifflin Company, 1966), p. 281.

exclusively for insiders who may be presumed to be intelligent, informed and able to follow up or supplement these reports through personal investigation or staff work."[1] In preparing statements of internal profits, consideration should not exclude such concepts as unrealized profits, inventory gains and losses, gains or losses because of price level changes, and so forth. Dean doubts "whether any routine divisional net profit computation along traditional full-cost lines can ever mean anything useful to either the divisions or top management."[2]

With respect to the specific function of financial performance appraisal, Dean emphasizes that the objective is to obtain the advantages of a small firm and to:

1. Associate responsibility and control.
2. Increase flexibility of profit center management.
3. Stress competitive instead of political skills.[3]

He cautions that profit centers are not, in fact, small independent companies and that joint costs of the entire organization will be applicable to more than one division. In this regard, he discourages allocations of many of these joint costs, indicating that "they are not pertinent for the purpose of the profit center's decisions, and their impact on evaluation of the center is too complex to try to summarize by mere allocation."[4]

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[1] Ibid., p. 282.

[2] Ibid., p. 283.

[3] Ibid., p. 284.

[4] Ibid., p. 285.

Several issues appear to dominate discussion of profit center operations. The question of control over expenses and revenues can be subdivided into two problem areas. These are output pricing and cost allocation. With respect to cost allocation, the difficulties are similar to those previously investigated under expense centers. The second element of the controllability issue, output pricing, involves systems and policies for establishment of transfer prices. A related issue is that of the usefulness of the profit center (financial performance center) concept in appraising entities when profit maximization is not the basis of evaluation.

Solomons points out that "whenever transactions between divisions make up more than a negligible proportion of the total transaction, it is obvious that the division's relative profitability can be very much affected by the formulae used for pricing interdivisional business."[1] He indicates that a high degree of interdivisional relationships raises doubts as to the usefulness of the profit center concept because of increased dependence upon arbitrary systems of transfer pricing. In cautioning against adopting an artificial profit center system which can be made to give the appearance of working through an arbitrarily adopted transfer pricing system, Solomons states "that nothing is to be achieved by a system of ficticious profit

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[1]David Solomons, Divisional Performance Measurement and Control (Homewood, Illinois: Richard D. Irwin, Inc., 1965), p. 161.

responsibility . . . which cannot be achieved without it."[1] The problems of transfer pricing have received considerable attention. Three basic approaches to establishing interdepartmental prices explained by Howard C. Greer are "(1) cost, (2) market, (3) negotiation."[2] Joel Dean classifies transfer pricing systems in more detail. He proposes that different methods of transfer price determination are competitive pricing, published market prices, marginal costs, full cost-plus, sales-minus, and traditional prices.[3]

Dean and Greer are in general agreement that "the choice depends both on the kinds of information that are available and the objectives that the management control system hopes to accomplish through the system."[4] "Each must be judged: first in terms of the mechanics of its application; and second, in terms of its usefulness for purposes of (a) performance evaluation, (b) investment planning, and (c) managerial motivation."[5] In cases where an outside market exists for a product, the going market price characteristically is proposed as the favored internal transfer price. Solomons indicates that use of the

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[1]Ibid., p. 164.

[2]Howard C. Greer, "Divisional Profit Calculation--Notes on the 'Transfer Price' Problem," in Contemporary Issues in Cost Accounting, ed. by Hector R. Anton and Peter A. Firmin (Boston: Houghton Mifflin Company, 1966), p. 290.

[3]Joel Dean, "Intracompany Pricing," pp. 108-11.

[4]Ibid., p. 108.

[5]Greer, "Notes on the 'Transfer Price' Problem," p. 290.

market price, where readily ascertainable, provides a mechanism for attaining transfers at the company-wide optimum of incremental costs. Because of the relationship between the two, market price does not conflict with the incremental cost concept.[1] Horngren asserts that "market price is the most desirable transfer price because it generally leads to the right decisions and it also provides a basis for judging performance that harmonizes with the profit center concept."[2] Practical considerations often interfere with adoption of a market price system. Frequently, market prices are unavailable or unreliable. They are often subject to manipulation or to erratic movements.

Dean favors competitive prices, established by arm's length negotiation and freedom to deal outside the company, indicating that such prices "provide sound guidance in making purchasing decisions, indicate the extent to which additional processing will be profitable, and direct the flow of products so as to make the greatest net profit for the company."[3] He also asserts that the "process of negotiation avoids arbitrariness and tends to create agreement."[4] Greer disagrees with the negotiated basis, stating that "the trouble with this appealing alternative is that it diverts the efforts of key personnel from activities

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[1]Solomons, Divisional Performance, pp. 171-74, p. 199, and pp. 212-28.

[2]Horngren, Accounting for Management Control, p. 373.

[3]Dean, "Intracompany Pricing," p. 108.

[4]Ibid.

promoting company welfare to those affecting divisional results only."[1] He further asserts that such a system may also lead to misstatement because of acceptance by one department or division of high or low prices from which "top management may derive a completely false impression as to managerial performance and profit opportunities."[2]

Cost-based systems, including marginal cost or full-cost systems, have the advantage of "integrity, understanding and convenience."[3] Disadvantages of cost-based methods include the tendency to push costs to the final processing and selling center as well as the lack of motivation for effecting cost savings. Greer indicates that the weakness of the cost "method is its almost complete lack of utility in the fields of evaluation, planning, and motivation."[4] Dean points out that the cost-plus method is arbitrary and authoritarian, thus "it provides a poor basis for evaluating division performance, it beclouds profits, and it inevitably diverts production into uneconomic channels."[5]

The sales-minus system mentioned by Dean[6] is a reversal of the cost-plus method and is therefore subject to similar disadvantages. Starting with the final selling price, allowances are subtracted to "provide for the costs and profits of intervening operations."[7]

Dean characterizes the traditional price method as "a weird

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[1]Greer, "Notes on the 'Transfer Price' Problem," p. 292.

[2]Ibid., p. 293. [3]Ibid., p. 290. [4]Ibid., p. 291.

[5]Dean, "Intracompany Pricing," p. 110.

[6]Ibid. [7]Ibid.

throwback to medieval times when the concept of a 'just' price prevailed."[1] Under this method the transfer price bears no relationship to costs or to the market. It is simply an arbitrary, consistent, convenient method of establishing a price. It appears to offer little in the way of solving the transfer price problem.

Greer concludes that the transfer price "problem is inherently insoluble."[2] He recognizes that there is value in profit center operations and, therefore, does not recommend abandonment of placing a value on output through transfer price systems. "The preferable course would seem to be: (a) let judgments on profitableness be made, and implemented, exclusively by top management (with aid from experts in analysis and interpretation); (b) develop other criteria for evaluating and motivating divisional management performance."[3] He considers a partial solution in which

> (a) the producing unit is credited with cost (plus) or market, whichever is higher, and (b) the receiving unit is charged with cost (plus) or market, whichever is lower. The difference (if determinable) is then identifiable as the cost to the company of compelling two divisions to do business with each other, instead of utilizing independent outlets or sources.[4]

It appears that utilizing the profit center concept for performance evaluation is subject to the cost allocation difficulties of expense centers, compounded by the difficulties inherent in transfer prices. The issue

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[1] Ibid., p. 111.

[2] Greer, "Notes on the 'Transfer Price' Problem," p. 293.

[3] Ibid., p. 294. [4] Ibid.

to be resolved is whether or not the advantages of pricing output, so that a monetary unit can serve as the common denominator for input, output, and residual (performance), outweigh the disadvantages connected with cost allocation and pricing. Greer concludes that the following should be considered in developing a profit center system:

> 1. Data most useful for motivation purposes are commonly least suited for pragmatic analysis and realistic forecasting, and vice versa (e.g., sales quotas established as goals for selling achievements are seldom acceptable as the foundation of dependable production or financial budgets).
> 2. Conclusions and decisions stemming from reports on "results" should be reached only by those well-schooled in the correct interpretation of the figures and responsible for the results of the business as a whole (not just one of its parts).[1]

Investment Centers

As previously noted, expense centers concentrate on costs, while profit centers focus on costs related to revenues. Investment centers go one step further in simulating small business independence and flexibility for internal divisions and departments. The performance result of investment centers is the difference between revenues and costs related to the investment (assets or capital). Typically, the results are expressed as a percentage return on investment (ROI) or as residual income (RI) after deducting a charge for the assets or capital employed. The approach is viewed as being an improvement over the return on sales and the budgeted standard profit approaches in that ROI is alleged to (1) show results in terms of a single comprehensive figure influenced

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[1] Ibid., p. 295.

by all aspects of the business, (2) measure effectiveness of using assets to generate profit, (3) provide for automatic investment evaluation, and (4) provide a common denominator for comparison with other organizations. The major problem encountered in the ROI approach, in addition to cost allocation and transfer pricing problems, involves investment (asset) evaluation and allocation. The residual income approach discussed by Solomons[1] and Dearden[2] appears to be an attempt to integrate concepts applicable to budgeted standard profits, the ROI, and the discounted present value approach to investment decision making. This concept measures in terms of an absolute profit residual after deducting a charge for the investment involved. The principal advantages attributed to the residual income approach include the practicability of using different rates of return for different assets, and the convenience of straightforward evaluation of the same type of asset in different divisions. Solomons contends that "the most suitable income figure for use in appraising the performance of divisional management, and also for use by divisional executives in guiding their decisions, is controllable residual income before taxes,"[3] as shown in Table 5. "To guide top management in its decisions relating to a division, the most appropriate figure seems to be net residual income."[4] The link between

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[1]Solomons, Divisional Performance.

[2]John Dearden, "The Case Against ROI Control," Harvard Business Review, May-June 1969, pp. 125-35.

[3]Solomons, Divisional Performance, p. 83. [4]Ibid.

TABLE 5

A FORM OF DIVISIONAL INCOME STATEMENT*

	$	$
Sales to outside customers	xxx	
Transfers to other divisions at market value	xxx	
Variable charges to other divisions for transfers not priced at market value	xxx	
		xxx
Less:		
Variable costs of goods sold and transferred	xxx	
Variable divisional expenses	xxx	
		xxx
Variable Profit		xxx
Add (deduct): Fixed charges made to (by) other divisions for transfers not priced at market value		xxx
		xxx
Less:		
Controllable divisional overhead	xxx	
Depreciation on controllable fixed assets	xxx	
Property taxes and insurance on controllable fixed assets	xxx	
		xxx
Controllable operating profit		xxx
Add (deduct): Nonoperating gains and losses		xxx
Less: Interest on controllable investment		xxx
Controllable residual income before taxes		xxx
Less:		
Noncontrollable divisional overhead	xxx	
Incremental central expenses chargeable to division	xxx	
Interest on noncontrollable investment	xxx	
		xxx
Net residual income after taxes		xxx
Less: Taxes on income		xxx
Net residual income after taxes		xxx

*Solomons, Divisional Performance, p. 82.

performance evaluation and controllability, discussed under expense centers and profit centers, also applies to investment centers. Shillinglaw indicates that of several profit concepts, "none is superior for all purposes."[1] He nevertheless favors controllable profit as the most appropriate for evaluating executive performance.

Henderson and Dearden express dissatisfaction with the ROI concept characteristic of investment center performance evaluation:

> ROI is a fraction, with annual net profit as the numerator and investment as the denominator. Both of these figures are so arbitrary that it is difficult to justify them as a measure of performance.[2]

The issues identified in their discussion include the problems associated with allocation of costs to time periods, capitalization versus expense treatment of expenditures, and the arbitrariness of the investment size used for evaluation. In addition to the cost allocation and output pricing problems of profit centers, a peculiar problem of asset allocation is encountered. Horngren points out that "the same difficulties that plague allocation of costs to departments beset allocations of assets to profit centers."[3] Investment centers also appear to be subject to the controversies associated with conventional financial accounting principles, such as periodicity, inventory valuation, and depreciation methods.

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[1]Shillinglaw, "Guides to Internal Profit Measurements," p. 72.

[2]Bruce D. Henderson and John Dearden, "New System for Divisional Control," Decentralized Management Series: Reprints from Harvard Business Review, September-October, 1966, p. 14.

[3]Horngren, Accounting for Management Control, p. 369.

In a survey conducted by Mauriel and Anthony, it was found that "generally accepted accounting principles, including any internal company rules and procedures intended to govern the reporting to outsiders of financial data on the firm as a whole, tend to influence very strongly the methods used in calculating the investment base."[1] "Unfortunately, these principles may cause distortions in divisional ROI or residual income measures."[2]

If investment centers are to be useful in performance evaluation, reports separating controllable from noncontrollable costs, revenues, and assets appear to be appropriate. In addition, there appears to be general agreement that procedures should be "based on the needs of an internal performance evaluation system rather than on the needs of an external reporting system."[3]

Summary

Internal financial measurements applicable to performance evaluation are established by using responsibility centers chosen on the basis of a division, department, or some other organizational unit for which responsibility can be identified. Depending on the financial data used for evaluation, responsibility centers are classified as expense centers (costs), profit centers (revenue less costs), or investment centers (revenue less costs in relation to investment).

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[1]Mauriel and Anthony, "Misevaluation of Investment Center Performance," p. 11.

[2]Ibid., p. 19. [3]Ibid.

Controllability of financial elements (cost, revenues and assets) used for measurement and evaluation is viewed as essential to performance evaluation usefulness. In addition, importance is given to the idea that all concerned should understand the various relationships and that the system adopted should be developed to fit the situation. In this regard, the various ways of classifying costs and the purposes of the various classifications should be subject to considerable attention. With respect to revenues, the advantages and disadvantages of different transfer pricing methods should be recognized. The tendency to implement the investment center concept of internal performance measurement by using financial accounting principles and practices may result in inappropriate decisions.

The problems and difficulties of measuring and evaluating performance in financial terms are ubiquitous. Despite these difficulties, the responsibility center concept appears to be popular. The next chapter of this paper will be an attempt to determine whether the concept is serving the purposes intended.

CHAPTER IV

PERFORMANCE ACCOUNTING ISSUES AND THE RESPONSIBILITY CENTER CONCEPT

Introduction

As previously discussed, financial performance measurement and evaluation techniques are viewed as tools of management that are intended to simplify complexities that would otherwise be imponderable. An investigation of the nature and purpose of financial performance measurement and evaluation led to a summarization of several viewpoints into three main objectives. This summary indicated that a system of financial performance measurement and evaluation should facilitate:

1. Establishment of performance criteria.
2. Goal congruence between the organization and individuals.
3. Communication of relevant information.

The responsibility center concept is viewed as a means of implementing financial performance measurement and evaluation. Under this concept the focus of performance measurement is on costs in expense centers, on profit in profit centers, and on profit related to capital in investment centers. Some of the recognized problems inherent in responsibility centers include cost categories and uses, cost allocation, controllability, transfer pricing, asset valuation and allocation, and the

potential for inappropriate evaluations associated with the influence of financial accounting principles on internal systems.

The purpose of this chapter is to investigate the issues of financial performance measurement and evaluation related to the responsibility center concept. Areas of conflict and expected dysfunctional consequences associated with the responsibility center concept and financial performance measurement and evaluation objectives will also be investigated.

Establishment of Performance Criteria

In order to measure and to evaluate, a standard is required. One of the objectives of financial performance measurement and evaluation is to facilitate setting organizational goals to serve as a standard or as a criterion for evaluation. Characteristically, profit is assumed to be the primary goal of a firm or an organization. Keller and Ferrara indicate that "budgetary planning and control has the ultimate objective of attaining the optimum profit."[1] In a subsequent discussion, the foregoing is tempered to some extent, as illustrated by the statement that "the basic underlying consideration in budgeting is constructing a plan of action which is designed to achieve an acceptable return on capital employed."[2] The distinction between "optimum profit" and "acceptable return" may be a matter of semantics. Profit goal primacy, however, is clearly

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[1]I. Wayne Keller and William L. Ferrara, Management Accounting, p. 387.

[2]Ibid., p. 394.

emphasized. In addition, Keller and Ferrara state that "the budgetary process can be effectively used in measuring and controlling the general financial performance of the firm and the financial performance of the individual divisions of the firm."[1] In response to the question of organizational objectives, Horngren accepts the tenet that "profit is generally recognized as the prime objective,"[2] but recognizes the other objectives and the danger of "overemphasis of the rate of return on assets as a measure of efficiency."[3] Anthony indicates that "the control process is facilitated when objectives of the organization are clear-cut, but in most organizations objectives are by no means clear."[4] He states that the business objective of profit "is both too simple and too vague . . . because corporations usually have more than one objective . . .[and]. . . because for effective control one needs to know the strategies that the top management has chosen: the products it has decided to manufacture, the scale and location of manufacturing activities, the markets in which the products are to be sold, the method of reaching these markets, the organizational structure, the sources of financing, and so on."[5]

The issues reflected in the foregoing are: (1) whether or not profit is the prime objective of a business organization, and (2) whether

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[1]Ibid., p. 410.

[2]Horngren, Accounting for Management Control, p. 292.

[3]Ibid., p. 293.

[4]Anthony, Management Accounting, p. 414.

[5]Ibid., pp. 414-15.

or not a single measure, in financial terms (costs, revenues, and/or profits), is a suitable standard with which to measure and evaluate internal performance with respect to organizational goals.

Charnes and Stedry indicate that the "implicit recognition of the existence of multiple goal structures possessed by individuals in organizations and organizations themselves is far from new."[1] In developing a theory concerning the nature of organizational goals, Cyert and March point out a problem:

> 1. People (i.e., individuals) have goals; collectives of people do not.
> 2. To define a theory of organizational decision making, we seem to need something analogous--at the organizational level--to individual goals at the individual level.[2]

They view the business organization as "a coalition of individuals, some of them organized into subcoalitions,"[3] including "managers, workers, stockholders, suppliers, customers, lawyers, tax collectors, regulatory agencies, ect."[4] In other types of organizations, and over a period of time, coalition members and boundaries are subject to change but can generally be identified by major classification. "Basic to the idea of a coalition is the expectation that the individual participants in the

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[1]Abraham Charnes and Andrew Stedry, "Investigations in the Theory of Multiple Budgeted Goals," in Management Controls: New Directions in Basic Research, ed. by Charles P. Bonini, Robert K. Jaedicke, and Harvey M. Wagner (New York: McGraw-Hill Book Company, 1964), p. 186.

[2]Cyert and March, A Behavioral Theory of the Firm, p. 26.

[3]Ibid., p. 27 [4]Ibid.

organization may have substantially different preference orderings (i.e., individual goals)."[1] Organizational goals, as developed through the coalition approach are viewed as "a series of more or less independent constraints imposed on the organization through a process of bargaining among potential coalition members and elaborated over time in response to short-run pressures."[2] Cyert and March reach the conclusion that "five major goals: production, inventory, sales, market share, and profit"[3] sufficiently represent the contemporary business firm. The production goal consists of the two elements of smoothing and output level. "It reflects pressures toward such things as stable employment, ease of scheduling, development of acceptable cost performance, and growth."[4] Avoidance of runouts and convenience of a source of material are the predominant pressures with regard to the inventory goal. In order for the organization to survive, the sales goal and the market share goal are imposed. "In addition, the market share goal is linked to . . . the demands of . . . comparative success . . . and . . . growth."[5] The profit goal is based on "(1) demands for accumulating resources in order to distribute them in the form of capital investments, dividends to stockholders, payment to creditors, or increased budgets to subunits; (2) demands on the part of top management for favorable performance measures."[6] The foregoing citations have applied to "the dimensions of goals (what things are viewed as important)."[7] Cyert and March indicate that

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[1]Ibid. [2]Ibid., p. 43. [3]Ibid. [4]Ibid., p. 41.

[5]Ibid., p. 42. [6]Ibid. [7]Ibid., p. 115.

"aspiration level on any particular goal dimension is influenced by . . . essentially three variables: the organization's past goals, the organization's past performance, and the past performance of other 'comparable' organizations."[1]

A proponent of the primacy of the profit goal, Joel Dean, states:

> A business firm is an organization designed to make profits, and profits are the primary measure of its success. Social criteria of business performance usually relate to quality of product, rate of progress, and behavior of prices. But these are tests of the desirability of the whole profit system. Within that system, profits are the acid test of the individual firm's performance.[2]

Dean recognizes that "profit maximization has become extensively qualified"[3] because of imperfect competition, which permits operation on the basis of standard or reasonable profit. With respect to the conflicting goals of individuals concerned with the firm's profit, he develops four criteria that could be used to set the standard:

1. What it takes to attract outside capital.
2. What earnings are needed to finance the firm's development solely from retained profits (plus depreciation).
3. What the company or comparable firms have normally earned.
4. What the man in the street thinks is "reasonable profit."[4]

Dean further contends that "different standards should be used for different purposes, since no one criterion of profits is acceptable to everyone who is interested in them."[5] He concludes, after a discussion of problems

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[1] Ibid.

[2] Joel Dean, Managerial Economics (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1951), p. 3.

[3] Ibid., p. 28. [4] Ibid., p. 34. [5] Ibid., p. 38.

inherent in the responsibility center concept, that "these complications don't rule out the use of divisional profit accounting for control purposes, but they mean that profit standards must be set largely by managerial ukase, designed with discretion and wisdom."[1] Solomons defends the role of financial performance goals, in particular "the excess of net earnings over the cost of capital"[2] and "the long-run counterpart of this objective . . . maximization of the discounted present value of the enterprise."[3] He indicates that this objective is all inclusive "because everything that happens to a business, or to any segment of it, affects present value."[4] Because of the difficulties in responsibility accounting, profit results are "imperfect approximations"[5] which "leave plenty of room for other measures of performance . . . particularly . . . the performance of a segment of a business such as a division."[6] The General Electric Company is cited as an example of a firm that supplements financial performance with non-financial measures. Various measurements and judgment are applied to the "key result areas"[7] of profitability, productivity, market position, product leadership, personnel development, employee attitudes, public responsibility, and balance between short-run and long-range goals.

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[1] Ibid., p. 43.

[2] Solomons, Divisional Performance, p. 277.

[3] Ibid. [4] Ibid. [5] Ibid. [6] Ibid.

[7] Ibid., p. 284. This appears to be similar to the result areas proposed by Peter F. Drucker, The Practice of Management (New York: Harper & Brothers Publishers, 1954).

It appears that primacy of the profit goal remains subject to controversy. In each of the above-cited viewpoints, profits--and by implication financial criteria in general--are considered important. This leads to the practice of setting financial standards for responsibility centers.

There appears to be broad agreement that an organization is subject to multiple goals, but that profits or financial goals ultimately reflect the entire goal structure. The question of whether or not a single measure, in financial terms, is a suitable standard with which to measure and evaluate performance remains. This question applies to the criteria problem and will also be covered to some extent under the heading of communicating relevant information.

With respect to "yardsticks which company management may utilize in judging its performance,"[1] Heckert and Willson indicate that profitability and growth ratios may be utilized for the total business. They also indicate that "these same . . . tests may be effectively applied to individual segments of the business, such as divisions,"[2] yet they caution that "mere figures cannot tell the entire story, and those who use them should be aware of their limitations."[3] "Concisely stated, it is important that the figures be properly interpreted and that they be

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[1]J. Brooks Heckert and James D. Willson, Controllership (2d ed.; New York: The Ronald Press Company, 1963), p. 36.

[2]Ibid., p. 37. [3]Ibid.

regarded as measures of financial performance and not the entire gamut of the management field."[1]

V. F. Ridgway cites several studies in which "the inadequacy of a single measure of performance is evident."[2] He recognizes that quantitative measures are useful, but cautions that "indiscriminate use and undue confidence and reliance in them . . . may result in side effects and reactions outweighing the benefits."[3] One of the problems in using standard costs as a criterion for performance is the "typical reaction of operating executives . . . to seek explanations and justifications!"[4] and to expend energy resolving the appropriateness of the change resulting in no reduction of the company's overall costs. This aspect of organizational goals overlaps with the area of goal congruence.

The rejection of profitability as a measure of performance in the Soviet Union is cited as evidence of its inadequacy.[5] Ridgway also considers the multiple criteria approach typified by Drucker[6] which is

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[1]Ibid.

[2]V. F. Ridgway, "Dysfunctional Consequences of Performance Measurements," in Topics in Managerial Accounting, ed. by L. S. Rosen (Toronto: McGraw-Hill Company of Canada Limited, 1970), p. 259.

[3]Ibid., p. 256. [4]Ibid., p. 258.

[5]Ibid., citing David Granick, Management of the Industrial Firm in the U.S.S.R. (New York: Columbia University Press, 1954).

[6]Peter F. Drucker, The Practice of Management.

"intended to focus attention on the many facets of a particular job."[1] This approach forces increased reliance on judgment. With respect to balancing these multiple objectives, Ridgway cites the use of a composite criteria which employs a weighted combination of "the measures of the various sub-goals into a composite score for over-all performance."[2] Because of value conflicts and other difficulties, he concludes that the use of composite measures, which appears to be a device for combining several aspects of performance into a broader single criterion, "may have adverse consequences for the over-all performance of the organization."[3]

Responsibility accounting, with its focus on financial measurements, appears to be a reasonably appropriate means of facilitating the measurement and evaluation of an organization's financial goals. If the view is taken that profits or financial performance ultimately reflect the multiple goals of organizations, then the responsibility accounting concept is particularly useful as a method of developing a single criterion for performance. The view that an organization is subject to multiple conflicting goals which require resolution through judgmental balance tends to de-emphasize the importance of the responsibility center concept with its single financial criterion for performance measurement and evaluation. For that matter, it appears

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[1]Ridgway, "Dysfunctional Consequences of Performance Measurement," pp. 260-61.

[2]Ibid., p. 261. [3]Ibid.

that any single standard, even when developed as a weighted composite of multiple criteria, is subject to dysfunctional consequences. The strict responsibility center concept, which relies on financial measurements for performance evaluation, appears to be subject to deficiencies with respect to facilitating development of standards in situations that depend upon a balance of multiple goals for long-term effectiveness.

Goal Congruence

The objective of integrating organizational goals and individual member goals is related to the criteria problem. Individual goal multiplicity and the concept that organizations are subject to multiple goals are similar concepts. The issue of organizational goals was treated briefly in the foregoing section of this chapter. With respect to an individual's goals, several popular concepts appear to be based upon the views of Maslow, in which "classifications of motivations must be based upon goals rather than upon instigating drives or motivated behavior."[1] According to Maslow's theory:

> 1. There are at least five sets of goals, which we may call basic needs. These are briefly physiological safety, love, esteem, and self-actualization. . . .
> 2. These basic goals are related to each other, being arranged in a hierarchy of prepotency. This means that the most prepotent goal will monopolize consciousness and will tend of itself to organize the recruitment of the various capacities of the organism. The less prepotent needs are minimized, even forgotten or denied. . . .

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[1]A. H. Maslow, "A Theory of Human Motivation," in Managerial Marketing: Perspectives and Viewpoints, ed. by Eugene J. Kelley and William Lazer (3rd ed.; Homewood, Illinois: Richard D. Irwin, Inc., 1967), p. 130.

> Thus man is a perpetually wanting animal. Ordinarily the satisfaction of these wants is not altogether mutually exclusive, but only tends to be. The average member of our society is most often partially satisfied and partially unsatisfied in all of his wants. . . . There are not only ordinary multiple motivations for usual behavior, but in addition many determinants other than motives.
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> 3. Any thwarting or possibility of thwarting these basic human goals, or danger to the defenses which protect them, or to the conditions upon which they rest, is considered to be a psychological threat. . . .[1]

Integration of these individual goals with organizational goals is a task of considerable magnitude. Recognizing that an organization is "a coalition of individuals, some of them organized into subcoalitions,"[2] and limiting the concept of the organization so that the concern is with the internal structure only, the objective of goal congruence appears to be that of reducing conflicts among the various management levels and the internal departments.

Responsibility accounting emphasizes the responsibility of a supervisor for his department or division. Argyris contends that "if everyone does his utmost to make certain that his own department is functioning correctly, but at the same time pays no attention to the functioning of his department in relation to others, trouble will . . . arise."[3] He indicates that interviews with supervisors in situations where financial measures are used in evaluating performance "left little doubt that they

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[1] Ibid., pp. 130-31.

[2] Cyert and March, "A Behavioral Theory of the Firm," p. 27.

[3] Chris Argyris, "Human Problems with Budgets," in Studies in Cost Analysis, ed. by David Solomons (2d ed.; Homewood, Illinois: Richard D. Irwin, Inc., 1968), pp. 417-18.

were department centered in outlook rather than plant-centered."[1] Argyris contends that "participation in making budgets"[2] should result in acceptance and therefore in goal congruence, and that "training in human relations"[3] should also be beneficial with respect to the use of financial performance evaluation. Apparently, participation is seen as the method by which the individual goal of self-actualization is induced to become operative. The way in which participation helps to alleviate the problem of a department centered versus a total organization outlook is not clear, but it appears to be through free discussion "in defining the steps by which . . . goals will be accomplished."[4]

Drucker's[5] system of "management by objectives" appears to be applicable to goal congruence. The concept involves the setting of objectives derived from specified over-all organizational goals, based upon agreement between superior and subordinate levels of the hierarchy. Because of the involvement, an increased commitment to attain these objectives is seen to develop.

Rensis Likert develops a similar hypothesis in which he contends that "supportive behavior and group decision making contribute to coordination,"[6] indicating that "evidence is available which demonstrates

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[1]Ibid., p. 477. [2]Ibid., p. 482.

[3]Ibid., p. 483. [4]Ibid.

[5]Drucker, The Practice of Management, pp. 121-28.

[6]Rensis Likert, The Human Organization: Its Management and Value (New York: McGraw-Hill Book Company, 1967), p. 67.

the value of a tightly knit, synergistic organization in achieving high levels of performance."[1]

As previously indicated in Chapter II, Stedry[2] has questioned the value of this participative concept in responsibility accounting. He contends that the individual's level of aspiration is a critical determinant of performance and that it might be independent of participation.

Harold J. Leavitt questions the participative concept and proposes the view of "large organizations as differentiated sets of subsystems rather than as unified wholes."[3] He contends that this view recognizes "that many sub parts of the organization may perform many different kinds of tasks, and therefore may call for many different kinds of managerial practices."[4]

According to Harry Levinson, the process of management by objectives and performance appraisal are closely related and are, among other things, intended "to measure and judge performance,"[5] and "to

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[1]Ibid., p. 70.

[2]Stedry, Budget Control and Cost Behavior, p. 91.

[3]Harold J. Leavitt, "Unhuman Organizations," in Readings in Organizational Behavior and Human Performance, ed. by L. L. Cummings and W. E. Scott, Jr. (Homewood, Illinois: Richard D. Irwin, Inc., 1969), p. 458.

[4]Ibid., p. 459.

[5]Harry Levinson, "Management by Whose Objectives?" Motivation Series: Reprints from Harvard Business Review, July-August, 1970, p. 18.

relate individual performance to organizational goals."[1] He contends that management by objectives (financial or some other measurable factor) typically does not consider the manager's personal objectives, changes in his needs over time, and the relevance of organizational goals to these wants, stating that, "management by objectives and performance appraisal processes, as typically practiced, are inherently self-defeating over the long run because they are based on reward-punishment psychology that serves to intensify the pressure on the individual while really giving him a very limited choice of objectives."[2] Levinson concludes that in a climate that takes advantage of group appraisals and other similar concepts which fit the general classification of participative management, "work relationships would then become dynamic networks for both personal and organizational achievements."[3] One advantage expected "from such arrangements is that problems would more likely be solved spontaneously at the lowest possible levels."[4]

Levinson's final conclusion, coupled with Stedry's findings[5] and the results of a series of job enrichment studies[6] which included changes involving broader financial discretionary controls and responsibility, leads to the speculation that the responsibility center concept which

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[1]Ibid. [2]Ibid., p. 26.

[3]Ibid. [4]Ibid.

[5]Stedry, Budget Control and Cost Behavior.

[6]William J. Paul, Jr., Keith B. Robertson, and Frederick Herzberg, "Job Enrichment Pays Off," Motivation Series: Reprints from Harvard Business Review, March-April, 1969.

involves a single financial goal for a broad area of operation, contributes to integration of individual goals and organizational objectives because of the increased discretion as to the method of operation of the mix of resources used to achieve the goal. Pressure to achieve financial results perceived as unfair may result in conflict and dysfunctional consequences.

With respect to the participative concept, the value appears to be associated with shared information that helps the responsibility center manager to evaluate his operation and alternative actions as related to other responsibility centers and to the entire organizational system. Participation may be instrumental in raising the manager's aspiration level.

The issue of controllability of costs and revenues used for performance measurement and evaluation appears to be associated with integration of individual goals and organizational objectives. Participation (vertical and horizontal interactions) appears to be important in development of equitable transfer prices, cost allocations, and asset allocations.

Communication of Relevant Information

The third major objective of financial performance measurement is that of facilitating communication of relevant, valid, pertinent information to decision makers. This objective is among the central concerns of any measurement scheme. The issue of relevance is related to questions involving the appropriateness of a single measure discussed previously in connection with the criteria problem. It applies to financial accounting as well as to the performance measurement and evaluation aspects of managerial accounting.

With respect to performance accounting and the responsibility center concept, the objective is to determine whether reported costs, revenues, and assets provide relevant information or misleading information for evaluation of performance. It is frequently alleged that typical accounting reports do not give adequate consideration to operations research techniques and the results of human behavior research. For this reason, it is expected that reports will not provide relevant information.

Communication of relevant information is related to the science of cybernetics. Norbert Wiener, who coined this term, indicates that "effective behavior must be informed by some sort of feedback process, telling it whether it has equalled its goal or fallen short."[1]

Stafford Beer points out that

> Before cybernetics, most of scientific work done on the subject of control had concerned relatively simple systems in isolated circumstances. Or, if the systems being considered were not really characterized by either of these properties, they were treated as if they were.[2]

Beer contends that economic, social and industrial systems are extremely complex and tend to have viable characteristics (growth, self-reproduction, and adaptiveness) which permit survival.[3] He identifies three attributes of a viable system: "its innate complexity, its complexity of interaction with the environment, and its complexity of internal connectivity."[4] These

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[1]Norbert Wiener, The Human Use of Human Beings (2d ed.; Garden City, New York: Doubleday & Company, Inc., 1954), pp. 58-59.

[2]Beer, Decision and Control, p. 255.

[3]Ibid., p. 256. [4]Ibid., p. 257.

are "so important that to override them and to treat the system through a simplified, isolated or incomplete model, places a definite and measurable limit on the knowledge of that system that can be obtained."[1] Beer also points out that "just as in the search for comprehension of complex systems the tendency has been to conceive of them too simply, so has there been a tendency to conceive of them deterministically."[2]

The general objective of communicating relevant information appears to be that of providing a means to cope with complexity and uncertainty. The need is for a reporting scheme or a model that provides information from which a reasonable approximation of the "real world" can be made.

Baladouni approaches the relevancy issue by viewing accountancy "as an integrated system of communication."[3] He identifies three problems that the accountant faces with respect to a given purpose for communicating. These are "selection of events, observation of events, and production of statements about events."[4] Conceding that the decision concerning which events to observe should be determined by the user of the statement produced, he points out that "it is not a simple matter to know with complete assurance that all relevant events for a particular purpose have been perceived, since perception is possible only when the

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[1]Ibid. [2]Ibid., p. 258.

[3]Vahe Baladouni, "The Accounting Perspective Re-examined," in Accounting and Its Behavioral Implications, ed. by William J. Bruns, Jr., and Don T. DeCoster (New York: McGraw-Hill Book Company, 1969), p.282.

[4]Ibid., p. 286.

accountant carries the appropriate concepts for identifying relevant accounting events."[1] He suggests "that at present we do not possess sufficient concepts for identifying relevant accounting events and that we need to develop new ones and/or to refine present concepts to create sub-concepts, and so on."[2]

Vatter identifies human traits characterized as "the search for the simple answer, and the reverence for mathematics"[3] which may result in misleading cost figures "if they are computed to fit one purpose and used for another purpose."[4] He classifies four broad categories of different situations which involve different considerations:

1. Measuring income.
2. Control of cost incurrence.
3. Overall planning.
4. Decision making in specific situations.[5]

Of these, the second appears to be applicable to performance measurement and evaluation in that it is viewed as serving "the managerial objective of placing responsibility for the incurrence of cost."[6] In this respect "costs must be related to things being done, and this is largely a matter of setting costs against decisions."[7] Vatter cautions that "in the patterns of cost incurrence that are associated with given activities, care must be

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[1]Ibid. [2]Ibid.

[3]William J. Vatter, "Tailor-Making Cost Data for Specific Uses," in Topics in Managerial Accounting, ed. by L. S. Rosen (Toronto: McGraw-Hill Company of Canada Limited, 1970), p. 95.

[4]Ibid. [5]Ibid., p. 98.

[6]Ibid., p. 100. [7]Ibid.

taken to remove the effect of variables which have no direct connection with the activity being costed."[1] He cites price level changes among the variables that require adjustment if cost reports are to be useful. It appears that this concept should also apply to income variations and asset valuations in responsibility center accounting. Vatter concludes that "the responsibility of the cost accountant is to learn the uses that are to be made of his cost data, and to make certain that the data are used as they should be, and to see that relevant and irrelevant data are handled properly, so that management may rely on the figures for what they purport to be--bases for decision."[2]

A review of some recent experiments and proposed techniques that have been directed toward the objective of relevancy will serve to illustrate some of the emerging concepts applicable to this area.

Rensis Likert points out the absence of consideration given to the "current value of the human organization and of customer good will"[3] "for each profit center and for the entire corporation"[4] and proposes "human asset accounting"[5] and recognition of the present value of good will "in every financial statement."[6] He contends that "the cold hard facts of accurate measurements will wipe out many of the erroneous

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[1]Ibid., p. 101. [2]Ibid., p. 110.

[3]Rensis Likert, The Human Organization, p. 146.

[4]Ibid. [5]Ibid., p. 148.

[6]Ibid., p. 152.

concepts which are widely held today but which are based on incomplete and short-run financial analysis of only a portion of the firm's assets."[1]

A joint effort involving the University of Michigan Institute of Social Research and the R. G. Barry Corporation of Columbus, Ohio, is directed toward the goal of developing a human resource accounting system.[2]

Michael H. Gilbert[3] of Ernst & Ernst also treats the human asset issue and cites several methods that have been proposed for developing an appropriate value. He recognizes the "strong theoretical argument for giving asset status to human resources"[4] and contends that the concept would be an improvement. However, he points out the potential for detrimental effect on employees that might result from establishing a dollar value as an indication of the worth of an individual.

In an experiment designed to test the hypothesis that working capital flow is the concern in decision making rather than net income,

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[1]Ibid., p. 154.

[2]R. Lee Brummet, Eric G. Flamholtz and William C. Pyle, "Human Resources Accounting: A Tool to Increase Managerial Effectiveness," in Topics in Managerial Accounting, ed. by L. S. Rosen (Toronto: The McGraw-Hill Company of Canada Limited, 1970), reprinted from Management Accounting (August, 1969), pp. 12-15; and "Human Resource Measurement--A Challenge for Accountants," Accounting and Its Behavioral Implications, ed. by William J. Bruns, Jr., and Don T. DeCoster (New York: McGraw-Hill Book Company, 1969), reprinted from The Accounting Review (April, 1968), pp. 217-24.

[3]Michael H. Gilbert, "The Asset Value of the Human Organization," Management Accounting (July, 1970), pp. 25-28.

[4]Ibid., p. 28.

Abdellatif Khemakhem reports that there is some substantiation for the hypothesis that "a manager often can utilize funds data more than income data."[1] Along this same line, Hector R. Anton[2] reports an experimental model of the firm in which conventional structures were disregarded during preliminary stages of development. "The accounting model developed is a funds flow model, or more specifically, a cash-flow model"[3] which is being used for further experiments concerned with relevance of information.

With regard to asset valuation methods, Dyckman[4] concludes that the results of a simulation, involving students and the effects of LIFO versus FIFO inventory valuation, indicate that accounting reports may be relatively less important than assumed. He found concern with cash availability and market-share rather than profits was evident. In a

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[1]Abdellatif Khemakhem, "A Simulation of Management-Decision Behavior: 'Funds' and Income," in Accounting and Its Behavioral Implications, ed. by William J. Bruns, Jr., and Don T. DeCoster (New York: McGraw-Hill Book Company, 1969), p. 230.

[2]Hector R. Anton, "Activity Analysis of the Firm: A Theoretical Approach to Accounting (Systems) Development," in Contemporary Issues in Cost Accounting, ed. by Hector R. Anton and Peter A. Firmin (Boston: Houghton Mifflin Company, 1966), pp. 526-30.

[3]Ibid., p. 527.

[4]Thomas R. Dyckman, "The Effects of Alternative Accounting Techniques on Certain Management Decisions," in Accounting and Its Behavioral Implications, ed. by William J. Bruns, Jr., and Don T. DeCoster (New York: McGraw-Hill Book Company, 1969), pp. 211-20.

similar experiment, Bruns tentatively concludes "that the particular method did not affect the decisions."[1]

Rosen and Schneck[2] recognize several areas applicable to the relevance issue in a review concerned with human resources accounting, performance appraisal research and information overload. They recommend "closer working relations between accountants and behavioral scientists,"[3] and "the extended use of systems concepts and systems analysis in accounting."[4]

The foregoing examples of the relevancy problem are not meant to be all conclusive. They simply illustrate the broad scope of difficulties involved in communicating relevant information. With respect to relevance and the responsibility center concept, Myron Gordon has identified a key point:

> The accounting system is one matrix which provides classifications of data for all purposes. Since the resources allowed the accountant are limited, using the system to develop one type of classification limits the resources available for alternatives. Also refinements in one basis of classification frequently make it extremely difficult to develop understandable data on any other basis.[5]

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[1]William J. Bruns, Jr., "Inventory Valuation and Management Decisions," in Accounting and Its Behavioral Implications, ed. by William J. Bruns, Jr., and Don T. DeCoster (New York: McGraw-Hill Book Company, 1969), p. 209.

[2]L. S. Rosen and R. E. Schneck, "Some Behavioral Consequences of Accounting Measurement Systems," in Accounting and Its Behavioral Implications, ed. by William J. Bruns, Jr., and Don T. DeCoster (New York: McGraw-Hill Book Company, 1969), pp. 173-80.

[3]Ibid., p. 179. [4]Ibid., p. 180.

[5]Myron Gordon, "Cost Allocations," p. 178.

He further points out that "the rigid adherence to rules in classifying transactions makes the data objective, but also introduces assumptions in the data which are not valid for every problem in which the data are used."[1] Because of this, it becomes especially difficult to determine the data appropriate for a particular situation or use. Understanding of the information, if developed from complicated rules, would require extensive technical training. For this reason there appears to be merit in simplicity, in developing a system that can be understood with a minimum of technical expertise.

The responsibility center concept appears to be a means of improving the communication of relevant information. It goes a step beyond product costing and results in a meaningful matrix that appears to be of general use to management in making performance evaluations. There remain a number of shortcomings in determining what is relevant. As pointed out by Netten, "most managers find it extremely difficult to pinpoint just what figures they want, how often they want them, and the format."[2] It is speculated that many managers, and accountants, would be hard pressed to specify explicitly how they integrate various reports to reach final conclusions. It is expected that techniques developed in behavioral science and systems research may contribute to improved

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[1]Ibid., p. 184.

[2]E. W. Netten, "Responsibility Accounting for Better Management," in Contemporary Issues in Cost Accounting, ed. by Hector R. Anton and Peter A. Firmin (Boston: Houghton Mifflin Company, 1966), p. 195.

practices with respect to relevancy of information applicable to the responsibility center concept and performance measurement. The problems identified with the responsibility center concept that apply to the relevancy issue appear to include all of those previously specified (i.e., controllability, allocation of costs and assets, transfer prices, influence of financial principles, and so forth.)

Summary

Three major objectives of performance measurement and evaluation which had been previously identified--(1) criteria establishment, (2) goal congruence, and (3) communication of relevant information--were used as the framework for this chapter. In each case the issues related to the problems associated with the responsibility center concept were investigated. It is noted that each of the areas appears to be interrelated and that the principles and practices proposed under the responsibility center concept (i.e., cost allocations, transfer prices, financial accounting influence, etc., also involve interrelationships.

The issues under the category of criteria establishment are concerned with the primacy of the profit goal as opposed to goal multiplicity and the suitability of a single financial measurement as reflective of an organizational criterion. If the financial goal is accepted as an organizational goal, the responsibility center concept appears to be an appropriate technique for financial performance evaluation. The evidence seems to support the contention that organizations are subject to goal multiplicity, leading to conflicts between the responsibility center concept

and the objective of facilitating establishment of organizational criteria for purposes of measurement and evaluation.

Subject to the problems of controllability of costs and revenues, the responsibility center concept appears to be suited to facilitating goal congruence because of discretion as to resource utilization associated with the responsibility center approach which involves a single measure of performance.

Communicating relevant information involves the issues of single measure suitability, and internal relationships among responsibility centers. Complexity and uncertainty are suffered at the price of using the same data for multiple purposes. By implementing the responsibility center concept as one of several ways of developing information while simultaneously adopting techniques developed through systems analysis and behavioral science research, relevancy is improved. Because of the difficulties in determining what is relevant for purposes of performance measurement and evaluation, reports of results under the responsibility center concept appear to be subject to deficiencies, and therefore supplemental information is required. There is evidence to support reporting in terms of cash flows, simplified rather than complex systems, measurement of the value of the human elements of the organization, and other similar departures from the traditional concept of costs and profits. There are frequent admonitions to consider the systems approach in developing relevancy of information. The responsibility center concept appears to be compatible with the objective of facilitating communication

of relevant information for purposes of performance evaluation, but it does not completely substitute for more detailed analysis of several elements of operational information.

CHAPTER V

CONCLUSIONS

Issues Identified

The general nature of measurement forms a basis for understanding the issues involved in performance accounting. Difficulties are associated with the use of surrogates which characterize qualitative elements in measurement systems.

Performance accounting systems, which form a part of the management process of control, are concerned with organizational goals, individual goals, relevancy, and relationships among these areas. Each of these areas appears to be subject to a number of controversies with respect to proposed treatment.

Under the responsibility center concept, financial performance evaluation is accomplished by comparisons that are made on the basis of aggregates expressed in financial terms. In expense centers costs are collected and classified to form a basis for these comparisons. Problems arise principally because of the many approaches that have been proposed to deal with cost classifications and relationships. The profit center involves the added complexity introduced because of the necessity to establish procedures for internal pricing. Transfer pricing methods can

result in conflicts among responsibility centers involved. The investment center is characterized by the additional dimension of asset (or investment) assignments and controversies associated with valuation, allocation, and short-run versus long-run results. Some authorities indicate that the disadvantages of the responsibility center are outweighed by the advantages of performance evaluation simplicity and objectivity as well as the additional discretion allowed to responsibility center managers with respect to resource allocation in achievement of over-all results. Much of the responsibility center controversy can be traced to questions involving the primacy of profit as an organizational goal, the suitability of a single measure of performance, integration of individual and organizational needs, and the relevancy of information chosen to represent performance.

Measurement

Measurement involves quantification and development of arbitrary rules. Acceptance of the rules can be based upon conscious rational consideration or simply upon tradition, habit, or unspecified assumptions. With respect to the subject of this paper, an understanding of the nature of measurement appears to be important to the extent that it permits consideration of what is being measured and what is not being measured.

Criteria Establishment

Performance evaluation requires establishment of a standard to serve as a basis for comparisons. The principal issue associated with establishment of criteria appears to be the conflict between those that

espouse the economic theory point of view that profit is the primary indicator of organizational effectiveness and those committed to the concept that an organization is subject to goal multiplicity.

Economic theorists appear to recognize a need for different standards of profit for different purposes. The appropriate standard for performance evaluation appears subject to considerable judgment. For this reason, the approach that supplements the profit goal as an indicator of organizational performance with multiple criteria is believed to merit consideration.

Cyert and March[1] have developed a rigorous argument in support of the goal multiplicity concept which includes profit as one of several performance areas. This appears to lend credibility to the approach that proposes the use of multiple goal criteria for performance evaluation.

The responsibility center concept calls for establishment of financial standards of effectiveness. Since profit is financial in nature, it follows that the responsibility center approach contributes to the performance accounting objective of facilitating establishment of performance criteria.

The dysfunctional consequences expected incident to excessive emphasis on a single criterion of effectiveness (such as cost limitations or profit targets) mitigate against sole reliance upon the responsibility center concept for performance evaluation. Although multiple criteria

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[1]Cyert and March, A Behavioral Theory of the Firm.

are expected to be less objective than a single measure, cost allocation, internal transfer pricing, price level changes, and similar practical difficulties preclude reliance upon responsibility center financial measurements except as a rough estimate of performance.

Goal Integration

The objective of establishing goal congruence between the individual and the organization involves integrating one set of multiple goals with another. One viewpoint contends that conflicts among individuals and internal organizational groups can be resolved by vertical and horizontal participation in specifying organizational goals. Stedry's[1] work indicates that the standard subject to influence is the participant's aspiration level which may not be significantly affected by participation. With respect to the responsibility center concept, the value of participation appears to be based upon the resulting "fair" standard that is expected to be negotiated through participative analysis of the various aspects of operation and conversion of the analysis to an expected outcome in terms of a financial aggregate.

A financial aggregate standard, although subject to dysfunctional consequences if it is viewed as threatening to the responsible individual, may contribute to effectiveness because it provides for adaptability to changing needs and to a changing environment. For this reason, the responsibility center concept, which is concerned with financial aggregates,

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[1]Stedry, Budget Control and Cost Behavior.

may be an appropriate technique for integrating the goals of the individual and the organization.

Much of the foregoing is speculative. Continued research in this area is warranted.

Relevancy of Information

The relevancy determination with respect to the responsibility center concept and performance evaluation remains elusive and subject to judgment. The search for techniques that will reduce complexity and uncertainty continues.

The responsibility center approach provides for some degree of simplification and objectivity, but it is subject to a multitude of controversies regarding the proper treatment of costs, revenues, and assets. Difficulties associated with transfer pricing techniques in artificially established profit centers or investment centers and difficulties with arbitrary capital or asset assignments in investment centers appear to limit the effectiveness of the responsibility center concept as a technique to simulate small business independence within a larger organization.

The cost center approach, although subject to arbitrariness in allocation decisions, may be appropriate in cases where financial standards are considered relevant to the operations involved. It appears just as likely that the cost center concept may be inappropriate in cases that involve considerable interdependence among organizational units. This does not say that costs should be omitted from performance evaluation

or from decisions. It means that a cost center should not be established artificially in cases where costs are not, in fact, a primary consideration in decision making. The contention is that decision makers can evaluate cost factors entering into a decision on the basis of analysis independent of the cost center concept. A similar rationale can be applied to profit centers and investment centers. Artificiality in establishing the responsibility center concept can lead to irrelevance and therefore to inappropriate evaluations and poor decisions.

The relevancy issue reverts to the discussion pertaining to the nature of measurement. It is important to recognize what can be measured and what cannot be measured, what is being measured and what is not being measured in a system used for performance evaluation. Caution is in order to insure that a measurement developed on the basis of one criterion is not ritualistically assumed to apply to another criterion.

Finding

No clear principle or theory has evolved as a result of this study. It is concluded that the responsibility center concept is a potentially useful technique to sharpen financial management effectiveness. The danger of implementing the concept is that assumptions about relationships may not be understood by all of the participants involved.

It is considered appropriate, therefore, to encourage continuation of research and experimentation that will relate the science of measurement, systems theory, cybernetics, and behavioral science research to management accounting and financial performance evaluation applications.

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